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ABSTRACT

"Science Citation Index" is a service that lists the contents of over 3,000 of the most important science journals and proceedings. A computer search of the Index was conducted using the terms "creationism," "scientific creationism," "special creation," "biblical creation," as well as related terms. The file searched extended from January 1978 until October 1981 and contained approximately 2.2 million items. Only 18 relevant items were located, none of which provided scientific evidence or logic for creationist concepts. Results of a second search using names of leading scientific creationists revealed that only 6 of 28 included in the sample published any articles in SCISEARCH (the computerized listing of all Science Citation Index contents plus an additional 1,000 journals and proceedings from the scientific/technical fields), none of which dealt with the basic concepts espoused by scientific creationism. This indicates that the basic concepts included in scientific creationism curriculum materials are not supported by the factual information and research of the natural sciences. Although scientific creationists continue to claim that the concepts which underlie their proposed curriculum materials are well-grounded in scientific theory and research, the comprehensive computer search conducted indicates that there is no basis for their key concepts. (JN)

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"SCIENTIFIC" CREATIONISM IS NOT BASED ON SCIENTIFIC RESEARCH

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Scientific creationists have been successful in introducing "equal time" legislative bills in eleven states and resolutions toward the same goal in four additional states and many more school districts and counties[1]. The basic scientific concepts proposed as the core of creationist science curricula are anachronistic and have no support in modern scientific research and theory building activities[2].

A major concept in the scientific creationism curriculum materials proposed for introduction into public schools is that the earth is fewer than 20,000 years old[3]. Independent of evolutionary theory there is much scientific evidence from many different areas of inquiry which indicates that the age of the earth is approximately 4.6 billion years[4]. Another basic concept in scientific creationism is that all present kinds of life were created at the same time and since that time have existed simultaneously except for those life forms which have become extinct. A third concept is that nearly all the present geologic features of the earth were formed a few thousand years ago by the receeding waters of the Noahachain flood[5]. A fourth concept is that the processes which affect geological features, such as erosion of highlands, deposition of sediments, and the formation of valleys and canyons, only hold true for the period after Noah's flood. Creationists assert pre-flood geological processes were very different because the antedilivian world was very different from ours, being perfectly created, without death and disease, and surrounded by a water vapor canopy which produced a greenhouse effect ("garden like")[6]. In the massive body of

scientific literature and research there is no evidence to support these concepts. On the contrary, there is abundant evidence from many areas of natural science which indicates that these and other scientific creationism concepts are invalid. Yet scientific creationists argue that these claims are scientifically based, not a particluar religious dogma, and are deserving of "equal" time in the public school science curriculum along with other modern science theories of origins[7].

Method

Scientists from all fields in the basic and applied sciences publish their studies in approximately 4,000 major journals and proceedings of scientific societies. Science Citation Index is a service that lists the contents of over 3,000 of the most important of these journals and proceedings. SCISEARCH is a computerized listing of all the Science Citation Index contents plus an additional 1,000 journals and proceedings from the scientific and technical fields. Using SCISEARCH it is possible to comprehensively search this massive body of scientific literature under specific topics or by authors' names. The computer system locates and lists relevant articles[8].

We searched this body of scientific literature using the terms "creationism," "scientific creationism," "special creation," "biblical creation," and related terms. The file searched extended from January 1978 until October 1981 and contained

approximately 2.2 million items[9].

Findings

Only 18 relevant items were located. Four of these are articles critical of scientific creationism as pseudoscience[10]. Five items are editorials that discuss the scientific and legal issues involved in attempts to promote scientific creationism curricula[11]. Nine items are letters to editors expressing opinions on the topic, some in favor and some opposed[12]. None of the 18 items provide scientific evidence or logic for creationist concepts.

Because SCISEARCH lists only article titles, author's names, institutional affiliation, and the complete journal citation, it is possible that some articles dealing with the topic were not identified if their titles did not include the key terms. Therefore, a search under the names of leading scientific creationists was undertaken. We reasoned that the persons most likely to be publishing significant scientific work related to basic scientific creationist concepts would be prominant in national creationists organizations.

An August 1981 letterhead from the Institute for Creation Research (ICR) lists names of 19 persons who serve as research associates and technical advisory board members. A June 1980 issue of the Creation Research Society Quarterly (CRSQ) lists names of 11 persons who serve on the editorial board. Another recent ICR listing of its publications provided additional names.

The results of the second computer search are presented in Table 1[13]. Examination of these materials reveals:

1) Only 6 of the 28 scientific creationists included in the sample published any articles in SCISEARCH journals during the 45 month period under consideration. Two others wrote letters to editors of SCISEARCH journals. Only the letter by Henry M. Morris dealt with creationism.

2) None of the articles published by these 6 persons deal with the basic concepts espoused by scientific creationism. No articles were located which provide scientific evidence or theoretical support for the basic assumptions and concepts which comprise the core content of the scientific creationism curriculum materials.

3) The 6 scientific creationists who published in SCISEARCH journals did so in their own technical specialties. No articles published by these persons are related to the basic assumptions and concepts of scientific creationism. Articles in technical specialties include such things as the chemistry and physics of food processing and packaging, microbiology culture techniques and methods, and simulation studies of loads, vibrations, and stresses in aircraft wing structures.

TABLE 1

PUBLICATIONS OF CREATIONIST RESEARCHERS IN
SCIENCE CITATION INDEX AND SCISEARCH JOURNALS
(January 1978 - October 1981[14])

Author Name	Source	Total No. Articles	Total No. Letters To Editor	Total No. Creationist Science Art.
Armstrong, H.L.	CRSQ	0	2	0
Austin, S.A.	ICR	1	0	0
Barnes, T.G.	ICR, CRSQ	0	0	0
Blick, E.F.	ICR	8	0	0
Bliss, R.B.	ICR	0	0	0
Boylan, D.R.	ICR	0	0	0
Cumming, K.B.	ICR	0	0	0
Cutchins, M.A.	ICR	2	0	0
Fliermans, C.B.	ICR	17	0	0
Gish, D.T.	ICR, CRSQ	0	0	0
Hamann, D.D.	ICR	22	0	0
Henry, H.B.	ICR	0	0	0

TABLE 1 (Continued)

Author Name	Source	Total No. Articles	Total No. Letters To Editor	Total No. Creationist Science Art.
Henson, J.L.	ICR	0	0	0
Howe, G.F.	CRSQ	0	0	0
Klotz, J.W.	CRSQ	0	0	0
Lammerts, W.E.	CRSQ	0	0	0
Menton, D.	ICR	0	0	0
Meyer, J.R.	ICR	0	0	0
Moore, J.N.	ICR, CRSQ	0	0	0
Morris, H.M.	ICR, CRSQ	0	1	0
Morton, J.S.	ICR	0	0	0
Oller, J.W.	ICR	0	0	0
Parker, G.E.	ICR	0	0	0
Rybka, T.W.	ICR	0	0	0
Slusher, H.S.	ICR	0	0	0
Tinkle, W.E.	CRSQ	0	0	0
Whitcomb, J.C.	ICR, CRSQ	0	0	0

TABLE 1 (Continued)

Author Name	Source	Total No. Articles	Total No. Letters To Editor	Total No. Creationist Science Art.
Williams, E.	CRSQ	2	0	0

The names of creationists were taken from the list of research associates and technical advisory board members for the Institute for Creation Research (ICR) and from the editorial board of the Creation Research Society Quarterly (CRSQ).

Discussion

The basic concepts included in scientific creationism curriculum materials are not supported by the factual information and research of the natural sciences. Even scientific creationist "researchers" do not publish studies that support their basic assumptions and concepts except in "captive" journals such as the Creation Research Society Quarterly which is not listed in the Science Citation Index nor the SCISEARCH system, but which is listed in the Christian Periodocal Index[15].

The issue frequently presented in the current debate over the introduction of scientific creationist curriculum materials into public school curricula is "special creation" versus evolutionary theory. The actual issue is modern science versus scientific creationist claims and concepts[16]. The content of the science curriculum should be based upon the empirical findings, logic, and methods of modern natural science. The science curricula of

public schools should not be required to include scientific creationism with its body of scientifically unsupportable claims.

A comprehensive search of the scientific literature for approximately the last three years indicates there is no basis for the key concepts of scientific creationism. This comes as no surprise to persons familar with the scientific and technical literature. Yet scientific creationists continue to claim that the concepts which underlie their proposed curriculum materials are well grounded in scientific theory and research[17].

Creationists frequently claim that they do research which supports their basic concepts and assertions[18]. They argue that the scientific establishment that controls article selections for the major journals is biased against scientific creationist views. For this reason, they claim, the evidence for the unpopular view is suppressed[19]. This too is an incredible claim. It is the nature of science and scientists to "pounce upon," study, and debate any scientific fact or finding which challanges the accuracy or details of existing scientific theories and models. If even one, or any part of one, of the scientific creationists basic assumptions or concepts had any empirical evidence or logical support from any of the fields of scientific or logical inquiry, a huge stir would occur in the scientific community. Scores of scientists would flock to the sites of the evidence and work earnestly to undo or "falsify" prevailing scientific theories in light of this new evidence. But there is no evidence for scientific creationism concepts. The issue was

debated long ago in the scientific arena and the scientific creationists lost[20]. The current arena in which creationists press their claims is by their choice outside the scientific community[21]. Well organized groups of creationists employ a wide variety of coercive political tactics at all levels of local, state, and federal government designed to force the incorporation of their religious viewpoints as science into public school curricula[22]. The movement bodes ill for both religious freedom and scientific literacy[23].

References and Notes

[1] See "Update on Creation Bills and Resolutions," Creation/Evolution, Winter, Issue 3, 1981, p. 45.

[2] Allen Hammond and Lynn Marqulis, "Farewell to Newton, Einstein, Darwin...," Science 81, December, 1981, pp. 55 - 57. Gerald Skoog, "Does Creationism Belong in the Biology Curriculum?" The American Biology Teacher, January 1978, pp. 23-26, 29.

[3] Duane T. Gish and Richard B. Bliss, "Summary of Scientific Evidence for Creation," ICR Impact, no. 96, June 1981.

[4] See Catherine A. Callaghan, "Evolution and Creationist Arguments," The American Biology Teacher, October 1980, pp. 422-425, 427 for a concise listing of creationist basic concepts and a systematic refutation of each claim based on modern natural science facts.

[5] John C. Whitcomb Jr. and Henry M. Morris, The Genesis Flood (Grand Rapids, Mi.: Baker Book House, 1961).

[6] Ibid. For examples of textbooks designed for public school use by scientific creationists to teach the concepts outlined in this paragraph see John N. Moore and Harold S. Slusher, Biology: A Search for Order in Complexity (Grand Rapids, Mi.: Zondervan Publishing House, 1974), pp. 409, 418, 422, 426, 470; Duane T. Gish, Evolution: The Fossils Say No! (San Diego, Cal.: Creation - Life Publishers, 1978), pp. 53 - 60, 165 - 173,; and Henry M. Morris, Scientific Creationism (San Diego, Cal.: Creation - Life Publishers, 1974), Chapters 5 and 6.

[7] See John Skow, "The Genesis of Equal Time," Science 81,

December, 1981, pp. 54, 57 - 60 for summary of this strategy and the history of its development. In earlier times scientific creationists readily admitted the religious character of their concepts. In their public curriculum proposals modern scientific creationists attempt to conceal the origin of the basic concepts and assumptions of their "theory" in a particular brand of religious dogma. They have learned to do otherwise is to invite defeat on the grounds of the consititutional separation of church and state issue. Some private creationist communications reveal the religious basis and intent of the movement. In a letter to subscribers of the ICR Acts and Facts publication (February 1979) Henry M. Morris makes the following statement.

> Although our message to the educational world necessarily and properly stresses the scientific aspects of creationism, we can never forget we are actually in a spiritual battle, and need always be clothed in God's whole armor...

[8] ISI SCISEARCH Data Base, File 34, January 1978 to October 1981, Institute for Scientific Information, 3501 Market Street, University City Science Center, Philadelphia, Pa., 19104.

[9] Ibid.

[10] The article citations are listed here just as they appear in the SCISEARCH computer listing. Godfrey, L. R., "The Flood of Anti-evolutionism - Where is the Science in Scientific Creationism?," Natural History, v90, n6, p4, 1981. Gurin,

J., "The Creationist Revival," The Sciences, v21, n4, p16, 1981. Callaghan, C. A., "Evolution and Creationist Arguments," American Biology Teacher, v42, n7, p422, 1980. Skoog, G., "Does Creationism Belong in the Biology Curriculum?" American Biology Teacher, v40, n1, p23, 1978.

[11] The editorial citations are listed in the same order and format as they appear on the SCISEARCH listing. Dickson, D., "Creationism Again an Issue in Arkansas - Civil - Liberties Take Suit Against Law," Nature, v291, n5812, p179-180, 1981. Calbreath, D. F., "The Challange of Creationism - Another Point of View," American Laboratory, v12, n11, p8, 1980. Pollitzer, W. S., "Evolution and Special Creation," American Journal of Physical Anthropology, v53, n3, p329-331, 1980. Henig, R. M., "Evolution Called a Religion, Creationism Defended as a Science," Bioscience, v29, n9, p513-516, 1979. Cowen, R., "Creationism in the Classroom," Technology Review, v83, n7, p8-9, 1981.

[12] Letters identified are listed in the same order and format as they appear on the SCISEARCH listing. Hatfield, C. B., "Evolution vs. Creationism," Geotimes, v26, n5, p14-15, 1981. Morris, H. M., "A Creationists Replies," Geotimes, v26, n5, p11-12, 1981. Callaghan, A., "Evolution and Creationist Arguments - Reply," American Biology Teacher, v43, n3, p153, 1981. Hedtke, R., "Evolution and Creationist Arguments - Other Views," American Biology Teacher, v43, n3, p153, 1981. Walters, S., "Evolution and Creationist

Arguments - Other Views," American Biology Teacher, v43, n3, p153, 1981. Sinclair, R. M., "Creationism in Toronto," Science, v211, n4486, p988, 1981. Gerlovich, J. A.; Goellner, K. E.; Grant, S. C.; Hanson, R. W.; Huffman, D. M.; McCollum, C. G.; Tiffany, L. H.; & Weinberg, S. L., "Creationism in Iowa," Science, v208, n4449, p1208, 1980. Fox S. W., "Creationism, the Random Hypothesis, and Experiments," Science, v213, n4505, p290, 1981. Searle, H. M., "Creationism vs. Evolution," Geotimes, v26, n6, p12, 1981.

13 A listing of the actual article citations is available from the authors upon request. Table 1 was prepared from this listing and examination of many of the journal articles and papers themselves.

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The search generated more articles than are listed in Table 1. This is because there are multiple authors by the same last names and first initials. The institutional affiliation and the specialty field of the authors were used to determine if the individual was or was not a creationist. The individual's field and institutional affiliation is listed for all creationists on the two source documents. The SCISEARCH listing also provides this information. In cases where there was still difficulty in making the determination additional checking was carried out to insure the accuracy of the Table 1. For example, H. M. Morris is listed as having 28 publications in the SCISEARCH listing.

All but one of these items appear in Control Engineering. One is item is a letter to the editor in the Geotimes Bulletin. For this item the author's institutional affiliation is listed at the Institute for Creation Research. A call to the editor of Control Engineering, Mr. Ed Kompass, confirmed that there is a second Henry M. Morris who works at Control Engineering but is not a creationist nor affiliated with the ICR. A similar situation occurred with T. G. Barnes for whom 13 astronomy articles were listed in the SCISEARCH file, all by a person located at the University of Texas, Austin. The creationist Thomas G. Barnes is a physicist at University of Texas, El Paso. A call to Thomas G. Barnes at the University of Texas, Austin revealed that there are two persons by the same name. The Dr. Barnes at Austin, the one who has published all 13 articles listed in the SCISEARCH file, is not the creationist Thomas G. Barnes. In addition, J. L. Henson is listed by SCISEARCH as having two publications. However, one J. L. Henson, whose first name is Jerry, is from Texas A & M. The other J. L. Henson is from the UCLA School of Dentistry. Neither of these persons listed in SCISEARCH are the creationist Joseph L. Henson affiliated with the ICR and Bob Jones University.

[15] This latter index is a listing of 35 evangelical Christian fundamentalis periodicals. See Eugene P. Sheehy, Guide to Reference Books, 9th edition, American Library Association, Chicago, 1976, p .253.

[16] Hammond and Marqulis, p. 57.

[17] Henry M. Morris, "The Anti-Creationists," Acts and Facts, Impact, no. 97, July 1981.

[18] Duane T. Gish, "A Decade of Creationist Research," Creation Research Society Quarterly, volume 12, 1975, pp. 34 - 46.

[19] Anoymous, "Government Agency Reveals Evolutionist Bias,"ICR Acts and Facts, no. 2, February 1977. A quote from this document is revealing.

> Evolutionists control our educational and scientific establishments. They dominate most publishing facilities and the news media. They have the use of many millions of dollars of tax money each year, while creationists have no public funds available but are totally dependent on the fincial support of interested individuals. Creationists, however, have one tremendous advantage. They have truth on their side (p. 7).

For more of these arguments see also R. L. Wysong, The Creation - Evolution Controversy (Midland, Mi.: Inquiry Press, 1978), pp. 28 -- 29, 427.

[20] See Laurie R. Godfrey, "The Flood of Anti-Evolutionism - Where is the Science in Scientific Creationism," Natural History, June 1981, pp. 4 - 10. Also see Harvey Siegel, "Creation, Evolution, and Education: The California Fiasco," Phi Delta Kappan, October 1981, 95 - 101.

[21] William J. Broad, "Creationists Limit Scope of Evolution Case," Science, 20 March, 1981, pp.1331-1332.

[22] J. Charles Park, "Preachers, Politics, and Public Education: A Review of Right-Wing Pressures Against Public Schooling in America," Phi Delta Kappan, May 1980, pp. 608-612. Wayne A. Moyer, "Scientific Creationism - An Old Theology Under a New Name," NABT News & Views, February 1980, pp. 1, 4. Roger Lewin, "A Response to Creationism Evolves," Science,

November 1981, pp. 635-638.

[23] See Henry P. Cole and Warren E. Lacefield, "MACOS: Its Empirical Effects Versus its Critics," a paper presented at the American Psychological Association, Montreal, Quebec, Canada, September 1, 1980 (ERIC Document Number ED 194 397, March 1981). This research article documents the effectiveness of coercive political tactics used by groups similar to scientific creationist organizations to change state and federal policy with respect to development and dissemination of science curriculum materials even though the materials were well designed and found to be effective in extensive evaluation studies.